

IN THE CLAIMS:

1. (currently amended) A preform used for injection molding of a fiber reinforced plastic, said preform being formed with a plurality of reinforcing fiber substrates stacked to each other and each made of at least reinforcing fiber yarns, comprising through holes which extend through a plurality of said reinforcing fiber substrates in a thickness direction of said preform, wherein each of said reinforcing fiber substrates is fixed to each other in the preform; and a resin material, whose main component is a thermoplastic resin, is interlaminated between layers of said reinforcing fiber substrates in said preform, a content of said resin material being in a range of 1 to 20% by weight relative to said preform.

2. (original) The preform according to claim 1, wherein substantially no cut end of reinforcing fiber filament exists in said through holes.

3. (previously presented) The preform according to claim 1, wherein a short diameter of each of said through holes is in a range of 0.1 to 3 mm.

4 - 5. (canceled)

6. (previously presented) The preform according to claim 1, wherein a volume content of reinforcing fibers V_{pf} of said preform is in a range of 45 to 62%.

7. (currently amended) The preform according to claim 1, wherein a volume content of reinforcing fibers V_{pf} (%) of said preform is in a range of $V_f - 5 \leq V_{pf} \leq V_f + 5$ relatively relative to a volume content of reinforcing fibers V_f (%) of ~~an FRP~~ a fiber reinforced plastic which is obtained by molding said preform.

8. (canceled)

9. (currently amended) The preform according to ~~claim 5~~, claim 1 wherein said resin material has a particle form.

10. (currently amended) The preform according to ~~claim 5~~, claim 1, wherein said resin material has a form of an organic fiber fabric formed by organic fiber yarns.

11. (previously presented) The preform according to claim 1, wherein each of said reinforcing fiber substrates is formed as a unidirectional sheet stabilized in form at a condition where said reinforcing fiber yarns are arranged in one direction in parallel to each other.

12. (previously presented) The preform according to claim 1, wherein each of said reinforcing fiber substrates is formed as a unidirectional woven fabric having a form in which said reinforcing fiber yarns are arranged in one direction in parallel to each other and having a weave structure in which auxiliary yarns are arranged in the other direction.

13. (previously presented) The preform according to claim 1, wherein each of said reinforcing fiber substrates is formed as a bidirectional woven fabric having a weave structure in which said reinforcing fiber yarns are arranged in parallel to each other in longitudinal and transverse directions, respectively.

14. (previously presented) The preform according to claim 1, wherein each of said reinforcing fiber substrates is formed as a multiaxially stitched substrate in which reinforcing fiber yarns

arranged in parallel to each other form layers and these layers are integrated by stitch yarns.

15. (previously presented) The preform according to claim 1, wherein said preform has a stepped portion with a different stacking number of said reinforcing fiber substrates.

16. (previously presented) The preform according to claim 1, wherein said through holes are locally provided at arbitrary positions in plane.

17. (currently amended) ~~An FRP~~ A fiber reinforced plastic molded by impregnating a matrix resin into a preform according to claim 1 and curing the resin.

18. (currently amended) The ~~[[FRP]]~~ fiber reinforced plastic according to claim 17, wherein a volume content of reinforcing fibers V_f of said FRP is in a range of 45 to 70%.

19. (currently amended) The ~~[[FRP]]~~ fiber reinforced plastic according to claim 17, wherein use of said ~~[[FRP]]~~ fiber reinforced plastic is a primary structural member, a secondary structural

member, an outer panel or an inner panel of transportation means of an airplane, an automobile or a ship.

20. (withdrawn) A process for producing a preform comprising:
a stacking step for forming a plurality of reinforcing fiber substrates each made of at least reinforcing fiber yarns and stacking a plurality of these substrates in a preform mold; and
a penetrating step for forming through holes which extend through a plurality of said reinforcing fiber substrates in a thickness direction of a stacked body.

21. (withdrawn) The process for producing a preform according to claim 20, wherein said preform is produced by at least the following steps (A) to (E) carried out in order:

(A) a stacking step for forming a plurality of reinforcing fiber substrates each made of at least reinforcing fiber yarns and stacking a plurality of these substrates in a preform mold;

(B) a disposing step for disposing a stacked body, formed by said stacking step, in a preform mold;

(C) a heating step for heating said stacked body and bonding respective layers, each comprising a reinforcing fiber substrate and a resin material, at least partially;

(D) a cooling step for cooling said stacked body; and

(E) a penetrating step for forming through holes which extend through a plurality of said reinforcing fiber substrates in a thickness direction of said preform.

22. (withdrawn) The process for producing a preform according to claim 20, wherein said preform is produced by at least the following steps (F) to (K) carried out in order:

(F) a stacking step for forming a plurality of reinforcing fiber substrates each made of at least reinforcing fiber yarns and stacking a plurality of these substrates in a preform mold;

(G) a penetrating step for stacked body for penetrating a plurality of said reinforcing fiber substrates with a needle or a pin in a thickness direction of a stacked body formed by said stacking step;

(H) a disposing step for disposing said stacked body in a preform mold;

(I) a heating step for heating said stacked body and bonding respective layers, each comprising a reinforcing fiber substrate and a resin material, at least partially;

(J) a cooling step for cooling said stacked body; and

(K) a removing step for removing said needle or said pin.

23. (withdrawn) The process for producing a preform according to claim 20, wherein a needle or a pin having a length of its short axis of 0.1 to 3 mm is used in said penetrating step.

24. (withdrawn) The process for producing a preform according to claim 20, wherein a through hole is formed while applying a ultrasonic wave to a needle or a pin in said penetrating step.

25. (withdrawn) The process for producing a preform according to claim 20, wherein a needle or a pin used in said penetrating step is integrated with a pressing plate disposed on said preform mold or said stacked body.

26. (withdrawn) The process for producing a preform according to claim 20, wherein a length of a needle or a pin used in said penetrating step is set at a length equal to a thickness of a required preform, and said preform thickness is controlled by bridging said needle or said pin between a pressing plate disposed on said stacked body and said preform mold.

27. (withdrawn) The process for producing a preform according to claim 20, wherein one of preform molds to be disposed is a bagging material and the other is a male mold or a female mold.

28. (withdrawn) The process for producing a preform according to claim 21, wherein, said heating step, said preform is pressed at an atmospheric pressure by enclosing said stack body in said preform mold in said disposing step (B) or (H) in advance and reducing a pressure in said preform mold to an atmospheric pressure or less.

29. (withdrawn) A process for producing an FRP by using a preform according to claim 1 and by at least the following steps (L) to (N):

(L) a setting step for disposing said preform in a mold;

(M) an injecting step for injecting a liquefied matrix resin into said mold to impregnate said matrix resin into said preform;
and

(N) a curing step for curing said matrix resin.

30. (withdrawn) The process for producing an FRP according to claim 29, wherein, said setting step (L), said mold is formed by at least a female mold or a male mold and a bagging material.

31. (withdrawn) The process for producing an FRP according to claim 29, wherein, said setting step (L), a resin distributing medium is stacked on an outermost surface of said preform, and in said injecting step (M), after said matrix resin is preferentially injected into said resin distributing medium, the resin is impregnated in a thickness direction of said preform through said through holes, the resin is impregnated in a plane direction of said preform from said through holes, and the resin is thus impregnated over the entire preform.